

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A method of switching, comprising:

receiving an input data stream carrying plural tributary payloads from an external input link, each of the plural tributary  
5 payloads ~~capable of being switched~~ switchable in space and time;

writing input columns of the input data stream to a common buffer according to a write pointer; and

in parallel with writing, reading from the common buffer to output columns of an output data stream according to a read  
10 pointer, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are ~~capable of being switched~~ switchable in time to the corresponding output  
15 column according to a communication protocol and maintaining an order of input columns within each of the plural tributary payloads.

2. (ORIGINAL) The method of claim 1 wherein the limited portion of the buffer depends on a corresponding location of the write pointer in the buffer, for each output column the corresponding location of the write pointer and the limited portion

5 containing the set of input columns for reading being mutually exclusive.

3. (ORIGINAL) The method of claim 1 wherein each of the plural tributary payloads is characterized by an arbitrary type.

4. (PREVIOUSLY PRESENTED) The method of claim 3 wherein each of the plural tributary payloads is characterized by a type selected from the group consisting of VT1.5, VT2, VT3 and VT6.

5. (ORIGINAL) The method of claim 1 wherein each of the plural tributary payloads is characterized by a same type.

6. (ORIGINAL) The method of claim 1 wherein the communication protocol is SONET.

7. (PREVIOUSLY PRESENTED) The method of claim 1 wherein each of the plural tributary payloads comprise an ordered set of input columns that are interleaved within a payload of the input data stream.

8. (PREVIOUSLY PRESENTED) The method of claim 1 wherein the input data stream is a frame having columns and rows and the common buffer having a length substantially equal to a frame row.

9. (CURRENTLY AMENDED) The method of claim 8 further comprising:

writing the input columns of the frame row into the common buffer sequentially from a beginning location to an end location of the common buffer according to the write pointer; and

in parallel with writing, reading the input columns from the common buffer to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are ~~capable of being~~ switched switchable in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads, the limited portion being a continuous range of buffer locations that depends on a corresponding location of the write pointer in the common buffer.

10. (PREVIOUSLY PRESENTED) The method of claim 8 wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 90N bytes.

11. (PREVIOUSLY PRESENTED) The method of claim 1 wherein the input data stream is a frame having columns and rows and the common buffer having a length less than a frame row.

12. (PREVIOUSLY PRESENTED) The method of claim 11 further comprising:

writing a first set of the input columns of the frame row into the common buffer sequentially from a beginning location to an  
5 end location of the buffer; and

further writing a second set of the input columns of the frame row sequentially from an intermediate location to an end location of the buffer.

13. (PREVIOUSLY PRESENTED) The method of claim 11 wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 62N bytes.

14. (CURRENTLY AMENDED) A switch comprising:  
a plurality of inputs and a plurality of outputs;  
each of the plurality of inputs receiving an input data stream carrying plural tributary payloads from an external input  
5 link, each of the plural tributary payloads ~~capable of being~~  
~~switched~~ switchable in space and time;

a write controller causing input columns of the input data stream to be written to a common buffer according to a write pointer; and

10 a read controller, in parallel with the write controller, causing the input columns to be read from the common buffer to output columns of an output data stream according to a read pointer, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common  
15 buffer that contains a set of the input columns that are ~~capable of being switched~~ switchable in time to the corresponding output column according to a communication protocol and maintaining an order of input columns within each of the plural tributary payloads.

15 15. (PREVIOUSLY PRESENTED) The switch of claim 14 wherein the limited portion of the common buffer depends on a corresponding location of the write pointer in the common buffer, for each output column the corresponding location of the write pointer and the limited portion containing the set of input columns for reading being mutually exclusive.

16. (ORIGINAL) The switch of claim 14 wherein each of the plural tributary payloads is characterized by an arbitrary type.

17. (PREVIOUSLY PRESENTED) The switch of claim 16 wherein each of the plural tributary payloads is characterized by a type selected from the group consisting of VT1.5, VT2, VT3 and VT6.

18. (ORIGINAL) The switch of claim 14 wherein each of the plural tributary payloads is characterized by a same type.

19. (ORIGINAL) The switch of claim 14 wherein the communication protocol is SONET.

20. (PREVIOUSLY PRESENTED) The switch of claim 14 wherein:

each of the plural tributary payloads comprise an ordered set of input columns that are interleaved within a payload of the input data stream.

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21. (PREVIOUSLY PRESENTED) The switch of claim 14 wherein the input data stream is a frame having columns and rows

and the common buffer having a length substantially equal to a frame row.

22. (PREVIOUSLY PRESENTED) The switch of claim 21 wherein:

the write controller causes the input columns of the frame row to be written into the common buffer sequentially from a beginning location to an end location of the buffer according to the write pointer;

the read controller, in parallel with the write controller, causes the input columns from the common buffer to be read to the output columns of the output data stream, the read pointer selecting, for each of the output columns, an input column from a limited portion of the common buffer that contains a set of the input columns that are ~~capable of being switched~~ switchable in time to the corresponding output column and maintaining the order of the input columns within each of the plural tributary payloads; and

the limited portion is a continuous range of buffer locations that depends on a corresponding location of the write pointer in the common buffer.

23. (PREVIOUSLY PRESENTED) The switch of claim 21 wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 90N bytes.

24. (PREVIOUSLY PRESENTED) The switch of claim 14 wherein the input data stream is a frame having columns and rows and the common buffer having a length less than a frame row.

25. (PREVIOUSLY PRESENTED) The switch of claim 24 wherein:

the write controller causes a first set of the input columns of the frame row to be written into the common buffer sequentially from a beginning location to an end location of the buffer; and

the write controller further causes a second set of the input columns of the frame row to be written sequentially from an intermediate location to an end location of the common buffer.

26. (PREVIOUSLY PRESENTED) The switch of claim 24 wherein the frame is an STS-N frame and the common buffer has a length substantially equal to 62N bytes.



27. (CURRENTLY AMENDED) A switch comprising:

a plurality of inputs and a plurality of outputs;

each of the plurality of inputs receiving an input data stream carrying plural tributary payloads from an external input link, each of the plural tributary payloads ~~capable of being switched~~ switchable in space and time;

a writing means for writing input columns of the input data stream to a common buffer according to a write pointer; and

a read means for reading the input columns from common buffer to output columns of an output data stream according to a read pointer in parallel with the writing means, the read pointer selecting, for each of the output columns, an input column from a limited portion of the buffer that contains a set of the input columns that are ~~capable of being switched~~ switchable in time to the corresponding output column according to a communication protocol and maintaining an order of input columns within each of the plural tributary payloads.

28. (CURRENTLY AMENDED) The method of claim 12 further comprising:

in parallel with writing the first set and the second set of the input columns, reading the input columns from the common

5     buffer to the output columns of the output data stream, the read  
pointer selecting, for each of the output columns, an input column  
from a limited portion of the common buffer that contains a set of  
the input columns that are ~~capable of being switched~~ switchable in  
time to the corresponding output column and maintaining the order  
10    of the input columns within each of the plural tributary payloads,  
the limited portion including buffer locations that depend on a  
corresponding location of the write pointer in the common buffer  
and whether the first set or the second set of the input data units  
is being written.

29. (CURRENTLY AMENDED) The switch of claim 25 wherein:

the read controller, in parallel with the write  
controller, causes the input columns from the common buffer to be  
read to the output columns of the output data stream, the read  
5     pointer selecting, for each of the output columns, an input column  
from a limited portion of the common buffer that contains a set of  
the input columns that are ~~capable of being switched~~ switchable in  
time to the corresponding output column and maintaining the order  
of the input columns within each of the plural tributary payloads;  
10    and

the limited portion includes buffer locations that depend  
on a corresponding location of the write pointer in the common

buffer and whether the first set or the second set of the input data units is being written.